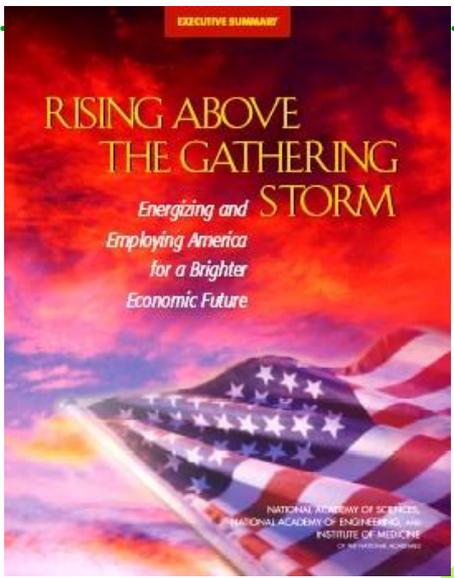


Quick Overview of ARPA-E: A New Paradigm in Energy Research

Arun Majumdar, ARPA-E Director

Creation & Launching of ARPA-E

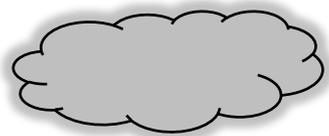


2009
American Recovery and Reinvestment Act
(\$400M appropriated for ARPA-E)

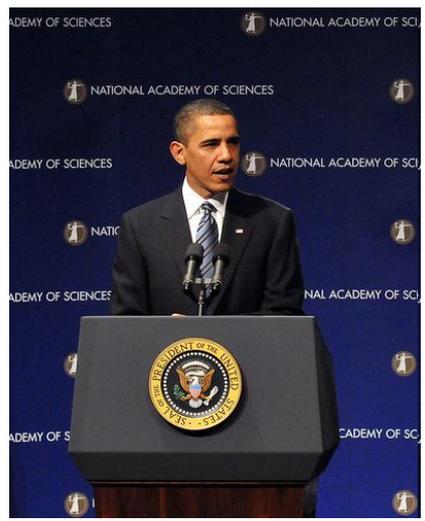
2007
America COMPETES Act

President Obama launches ARPA-E at National Academies on April 27, 2009

2006
Rising Above the Gathering Storm
(National Academies)



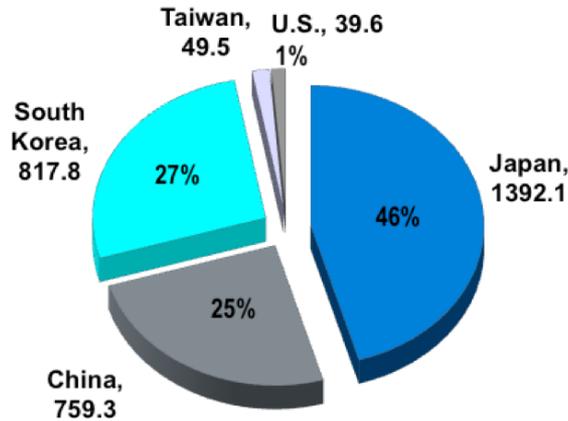
Innovation based on science and engineering will be primary driver of our future prosperity & security



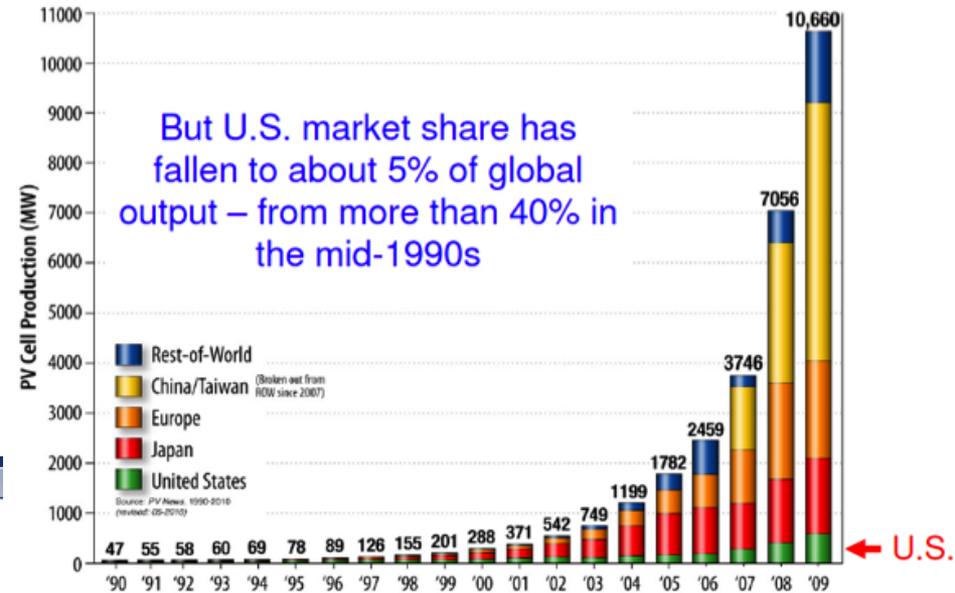
Wake Up Call



Lithium-ion battery manufacturing volumes in 2009
(millions of cells/year)



Solar PV is a booming global industry



Worldwide production of solar photovoltaics – in Megawatts



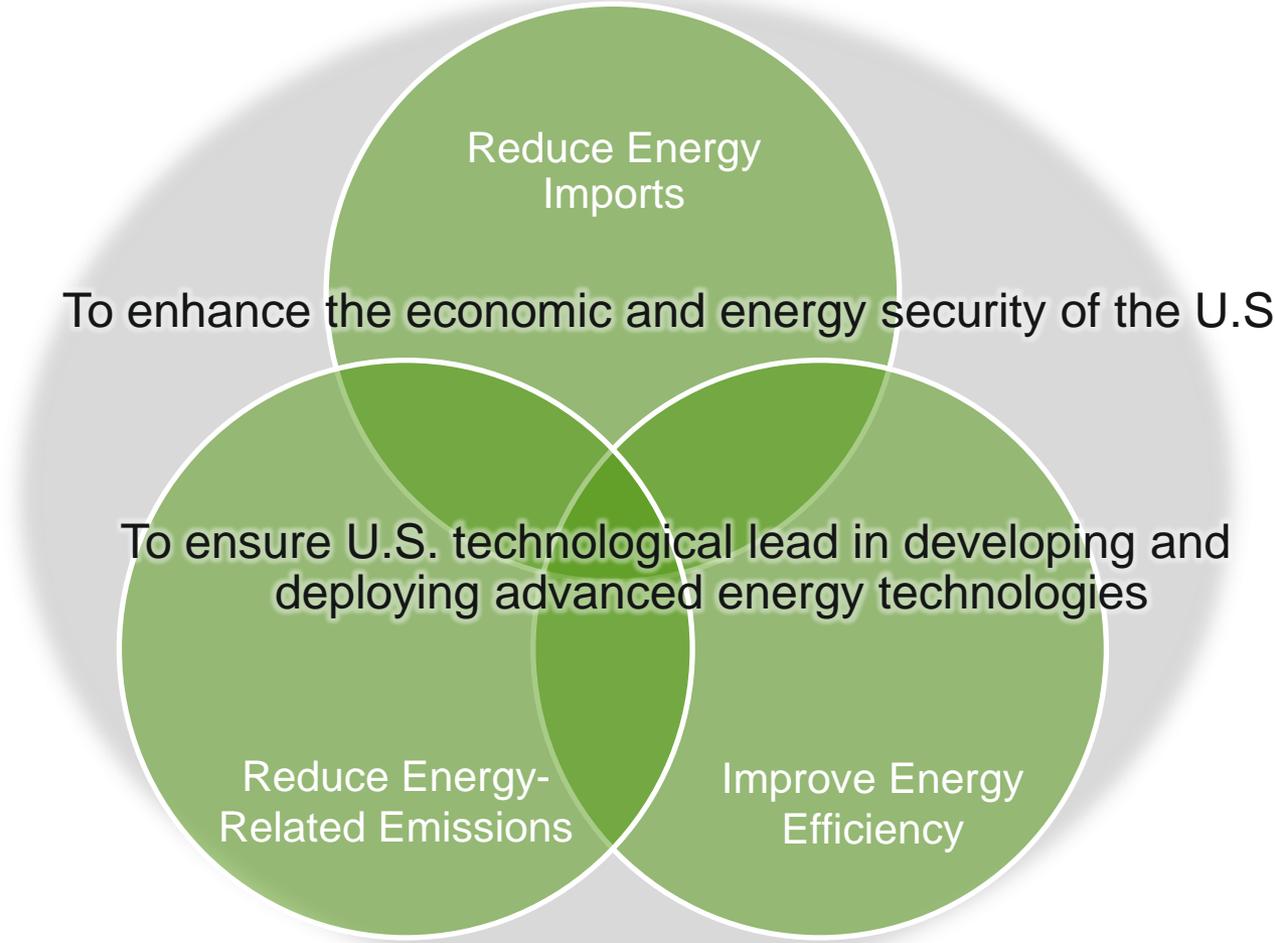
THE ENRICO FERMI AWARD
2009



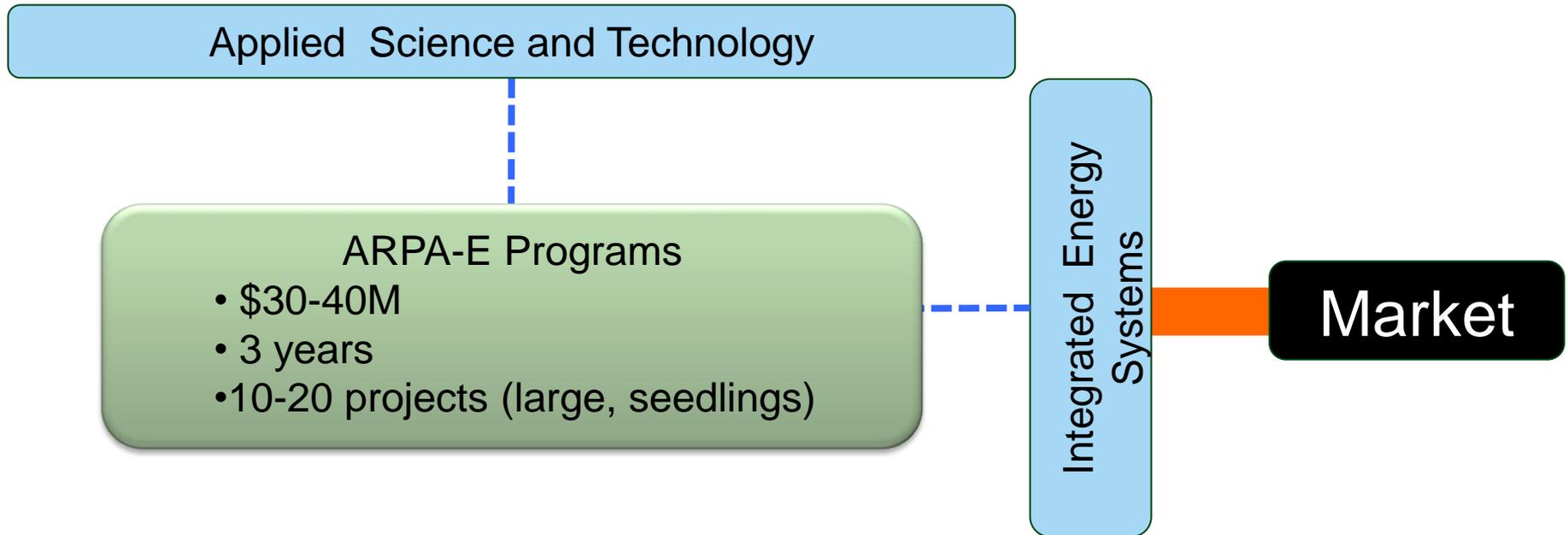
John Goodenough, U. Texas at Austin

Innovations in energy technology are at the core of our
National Security
Economic Security
Environmental Security

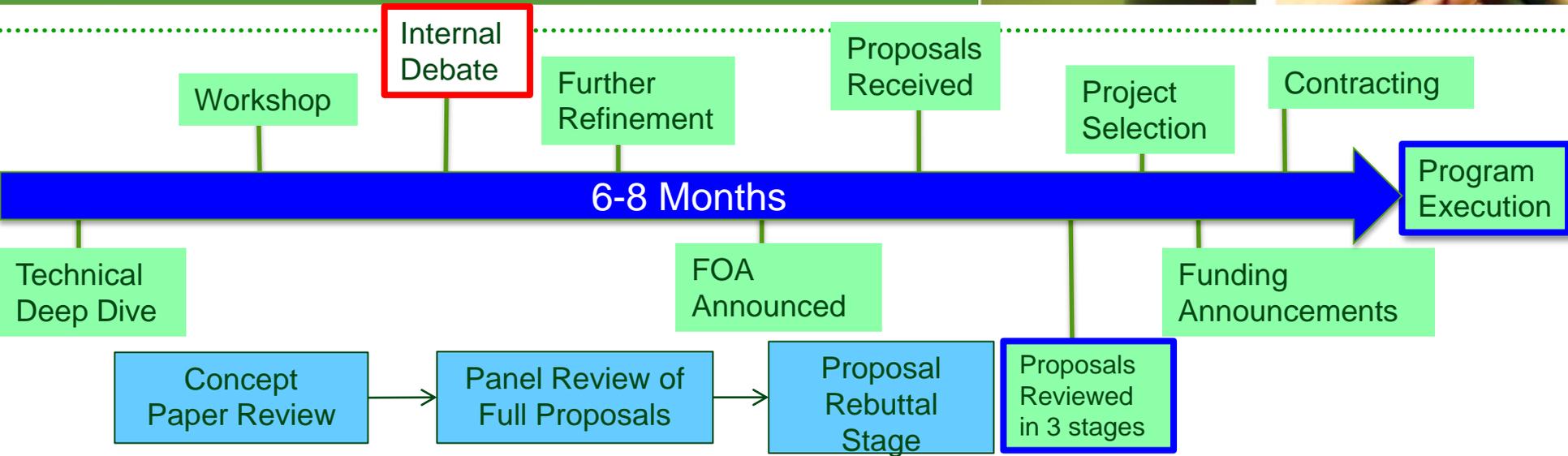
ARPA-E's Mission



Technology Push – Market Pull



Program Creation – Speed is of Essence



1. What is the global landscape – science, technology, markets...?
2. What are the major gaps and “white spaces”?
3. What’s new & why is it a potential game-changer? How much potential impact can it make on ARPA-E mission and markets?
4. Will it scale in cost and volume?
5. Who will adopt this technology? Who are the customers? Are there non-technical barriers (policy, markets)?

ARPA-E Programs



Broad Solicitation



Transportation

Electrofuels	BEEST
	

End-Use Efficiency

BEETIT



Stationary Power

ADEPT	IMPACCT	GRIDS
		

What is an ARPA-E Project?



IMPACT

If successful, project could have:

- High impact on ARPA-E mission areas
- Large commercial application

BREAKTHROUGH TECHNOLOGY

Technologies that:

- Do not exist in today's energy market
 - Are not just incremental improvements; could make today's technologies obsolete

ADDITIONALITY

- Difficult to move forward without ARPA-E funding
- But able to attract cost share and follow-on funding
- Not already being researched or funded by others

PEOPLE

- Best-in-class people
- Teams with both scientists and engineers
- Brings new people, talent and skill sets to energy R&D

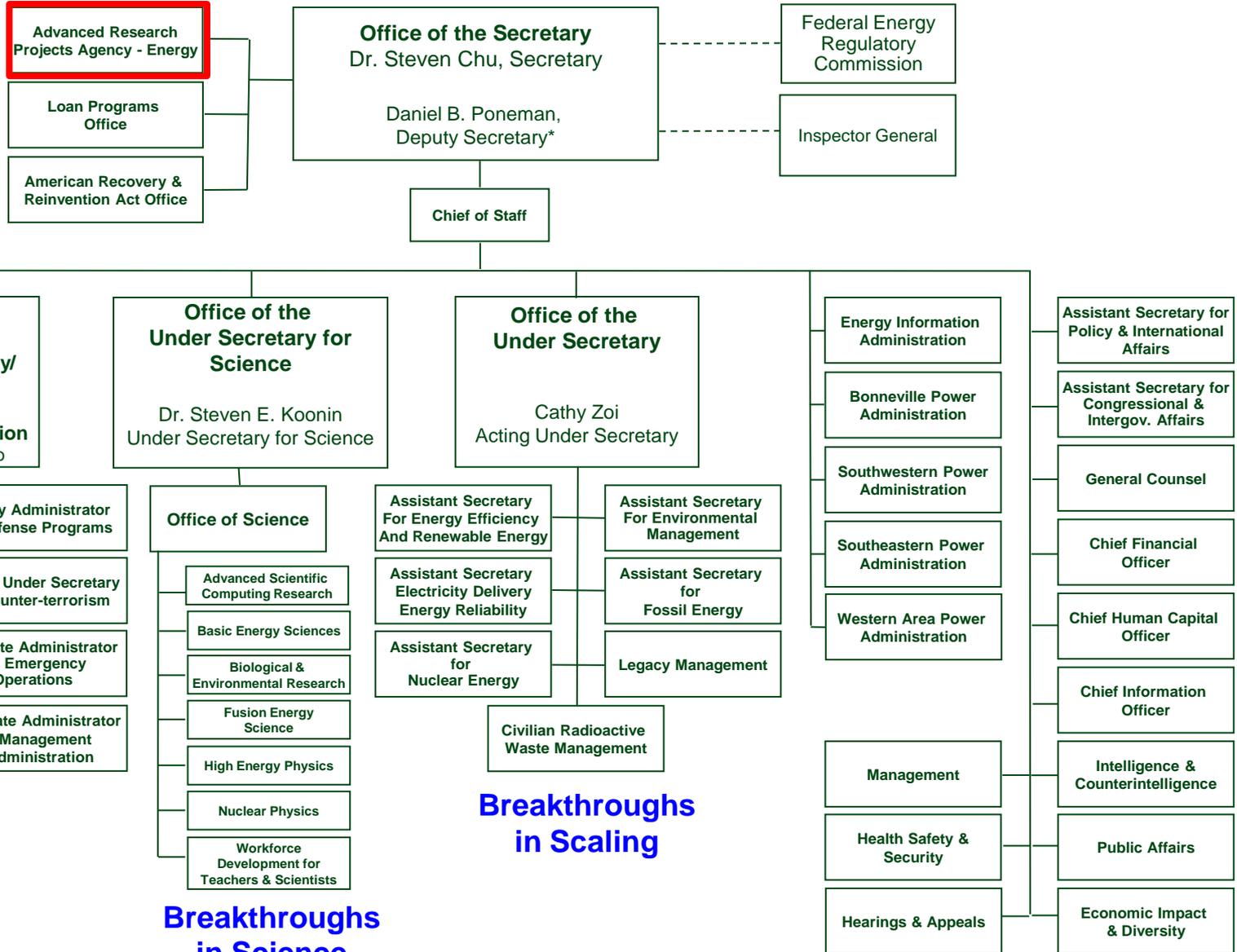
Geographical Distribution of Projects



Program Directors Drive Active Hands-on Program Management (Technical Support & Scrutiny, Risk Management, Go-NoGo Milestones)

Breakthroughs in Technology

DOE ORGANIZATIONAL CHART



Breakthroughs in Science

Breakthroughs in Scaling



* The Deputy Secretary also serves as the Chief Operating Officer



Technology Showcase

- *ARPA-E Funded technologies;*
- *AND*
- *Finalists that ARPA-E could not fund*

- 2 months preparation
- 1700 attendees
- Integrating relevant communities
 - *Scientists & engineers*
 - *Technology entrepreneurs*
 - *Other DOE Offices and federal agencies*
 - *Investors*
 - *State and regional clean tech incubators*
 - *White House, Congress and policy makers*

Feb 28-March 2, 2011

Washington, DC



Supporting America's Breakthrough Energy Innovators

Energy Innovation Summit

February 28-March 2, 2011 • Washington, DC